

## MOTHERS' INTERACTIVE BEHAVIOURS AND CHILD ENGAGEMENT: THE MODERATING EFFECT OF CHILD CARE

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**Abstract:** The goal of this study was to investigate the influence of mothers' interactive behaviours and child care quality on children's observed sophisticated engagement and non-engagement in child care, after accounting for children's age and gender and mothers' education. Specifically, we aimed to study the moderating role of child care quality on the association between mother interactive behaviours and child engagement in child care. We observed 120 mothers and their children (60 boys and 60 girls) aged between 14 and 49 months, attending 15 infant and toddler centres from the Metropolitan area of Porto. Findings indicate that sophisticated engagement is influenced by children's age, increasing as children get older. Non-engagement (a) is more frequent in boys, (b) decreases as children get older and as mothers' education increases, and (c) increases as mothers' active teaching increases and mothers' responsiveness and child care quality decrease. Results further suggest that child care quality moderates the negative association between mothers' responsiveness and child's non-engagement, with a stronger association occurring in lower-quality child care classrooms.

**Key words:** mother interactive behaviours, quality of child care, child engagement

**Comportamento Interactivo Materno e Envolvimento dos Filhos: O Papel Moderador da Qualidade dos Cuidados Institucionais (Resumo):** Este estudo teve como objectivo estudar os efeitos dos comportamentos interactivos maternos e da qualidade da creche no envolvimento sofisticado e no não-envolvimento da criança, observados naquele contexto, após controlar a idade e o sexo das crianças e a escolaridade das mães. Especificamente, pretendeu-se testar o papel moderador da qualidade das salas na associação entre os comportamentos interactivos maternos e o envolvimento da criança. Foram observadas 120 mães e respectivos filhos (60 meninos e 60 meninas) com idades compreendidas entre os 14 e os 49 meses de idade, que frequentavam 15 creches da Área Metropolitana do Porto. Os resultados revelam que o envolvimento sofisticado da criança é explicado apenas pela idade desta, havendo um aumento deste tipo de comportamentos à medida que a

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idade da criança aumenta. Por seu turno, o não-envolvimento (a) é mais frequente nos rapazes, (b) diminui à medida que a idade da criança e a escolaridade das mães aumentam e (c) aumenta à medida que os comportamentos de ensino activo aumentam e que a responsividade das mães e a qualidade da creche diminuem. Verificou-se ainda que a qualidade da creche modera a associação negativa entre a responsividade materna e o não-envolvimento da criança, sendo esta associação mais forte nas crianças que frequentam creches de mais baixa qualidade.

**Palavras-chave:** comportamentos interactivos maternos, qualidade da creche, envolvimento da criança

## Introduction

Child engagement has been defined as the amount of time children spend interacting with the environment (with adults, peers, or materials) in a developmentally and contextually appropriate manner (Ridley, McWilliam, & Oates, 2000). The developmental appropriateness criterion requires that behaviour is appropriate for the child's developmental age and abilities, and the contextual appropriateness criterion requires that behaviour is appropriate for the activity being conducted and the expectations for that context.

Engagement is a measure of the totality of children's behaviours, providing a holistic picture of children's everyday experiences in child care (Raspa, McWilliam, & Ridley, 2001). McWilliam, Trivette, and Dunst (1985) argued that engagement is a necessary condition for developmental change. In fact, children learn about the world depending on the quality of their interactions with people and objects. Engagement sets the occasion for optimal learning to occur, because children who are consistently attending to and interacting with their environments are more likely to demonstrate and perfect behaviour competencies (see McWilliam *et al.*, 1985). In fact, studies have shown that higher levels of engagement are related to higher levels of student achievement (see Ridley *et al.*, 2000).

Research has shown that child engagement is influenced by child care quality, as well as by child's characteristics, namely chronological and developmental age. Both chronological and developmental age have been found to be positively associated with sophisticated engagement and negatively associated with non-engagement (e.g., Aguiar, Cruz, Bairrão, & Barros, 2005; de Kruif & McWilliam, 1999; McWilliam & Scarborough, 1997; Pinto, Barros, Aguiar, Pessanha, & Bairrão, 2006). Although research clearly indicates that there are direct links between family environment and children's developmental outcomes (Bradley & Corwyn, 2005), there are insuf-

ficient data regarding family predictors of child engagement. Few exceptions can be identified. Using the same data set as the current study, although with different analytical approaches, Aguiar (2009) and Aguiar *et al.* (2005) were the first to focus on family predictors of child engagement, thus defined and operationalised. Findings by Aguiar (2009) suggested maternal responsiveness does not influence child engagement in child care but influences child engagement during mother-child dyadic play, revealing positive associations with sophisticated engagement and negative associations with nonengagement. Aguiar *et al.* (2005) also did not find an association among mothers' interaction profiles (i.e., clusters) and child engagement in child care. Using a different operationalisation of the engagement construct, Kim and Mahoney (2004) found positive associations among mothers' responsiveness and affect and child engagement in mother-child dyadic situations.

The current study intended to further investigate the contribution of specific mother interactive styles to child engagement in child care, after accounting for child care quality and child's characteristics. Before proceeding, some evidence will be presented regarding the relation between child care quality, mothers' interactive behaviour, and child outcomes.

#### *Child Care Quality and Children's Engagement*

The link between the quality of child care and the quality of children's engagement behaviour has been supported by research results. Research has demonstrated that children attending low-quality centres were more likely to be uninvolved in classroom activities (Love, Ryer, & Faddis, 1992) and more engaged in solitary play and aimless wandering (Vandell & Powers, 1983), whereas children in higher-quality programs tended to be involved in more complex play activities and social interactions (Howes, Smith, & Galinsky, 1995) and engaged in less crying and fighting (Love *et al.*, 1992). Additionally, McWilliam *et al.* (1985) found that program philosophy and activities within programs influence the level and variability of engagement, and Raspa *et al.* (2001) showed that poor quality classrooms were associated with unsophisticated engagement, and, correspondingly, sophisticated child engagement levels were associated with classrooms of higher global quality.

#### *Mothers' Interactive Behaviours and Child Development*

A large body of research shows that mother-child interactions predict child developmental outcomes (see Guralnick, 2006). Maternal responsiveness has been identified as an important variable in the parenting literature. It involves perceiving the child's cues or signals, interpreting them accurately, and selecting an appropriate, prompt, and contingent response (Bornstein & Tamis-LeMonda, 1997). This maternal constellation of behaviours needs to

be appropriate in type, timing, and intensity to meet the needs and desires of the child, including the child's developmental needs (Kochanska & Aksan, 2004; Wakschlag & Hans, 1999). It has been associated with advances in socio-emotional and cognitive domains of child development. For example, maternal responsiveness in the first years of life provides the foundation for the development of behavioural regulation and social competence in young children (Kochanska, 1997; Leerkes, Blankson, & O'Brien, 2009), predicts child responsiveness (Kochanska & Aksan, 2004) and is associated with infant attention span and symbolic play (Bornstein & Tamis-LeMonda, 1997), cognitive development (Landry, Smith, Swank, Assel, & Vellet, 2001), achievement of language milestones (Tamis-LeMonda, Bornstein, & Baumwell, 2001), and with later social skills (Steelman, Assel, Swank, Smith, & Landry, 2002). The absence of maternal responsiveness during infancy is associated with negative patterns of social development (Landry *et al.*, 2001), with externalizing behaviour in two- to three-year-old boys (Shaw, Keenan, & Vondra, 1994), and with behavioural problems in middle childhood (Wakschlag & Hans, 1999).

Responsiveness can be distinguished from other more general positive parenting attributes such as active teaching (Bornstein & Tamis-LeMonda, 1997; Wakschlag & Hans, 1999). While responsiveness is generally concerned with timing, pacing, flexibility, and emotional engagement, active teaching, designated as encouragement/guidance by Wakschlag and Hans (1999), involves mothers taking an active role in teaching, structuring, and limit setting, emphasizing the use of language, bright positive affect, and demonstration of the use of toys and other objects (Wakschlag & Hans, 1999).

Active teaching is not consistently related to child outcomes. Mothers' behaviours, such as task orientation (i.e., the ability to support the child and to create appropriate structure and limits), positive emotion (i.e., lack of hostility and confidence in successful interaction), and allowance of autonomy have been found to predict preschoolers socio-emotional competence (Denham, Renwick, & Holt, 1991). However, Wakschlag and Hans (1999) found no significant associations between encouragement/guidance and child outcomes.

Dyadic play situations provide a methodological opportunity to observe maternal interactive behaviours. Responsive mothers approach free play as a relaxing opportunity to enjoy their children, being attentive to their interests and emotions, while active teaching mothers approach it as an opportunity to teach, stimulate, and promote child development.

The purpose of this study was to investigate the relationship between maternal interactive behaviours, child care quality, and child engagement in child care. Specifically, and because it is reasonable to expect classroom characteristics to affect the direction or strength of the association between

mothers' interaction behaviours and children's observed engagement in those classrooms (as research already established that child engagement is influenced by child care features), this study was designed to investigate whether child care quality had a moderating effect on the association between mothers' behaviours and child engagement. According to our research hypotheses, (a) both mothers' responsiveness and child care quality were positively associated with sophisticated engagement and negatively associated with nonengagement; and (b) higher-quality child care would maximize the positive effects of maternal responsiveness on child engagement (i.e., more sophisticated and less non engaged behaviour). Given the inconsistent outcomes previously reported for mothers' active teaching, we were interested in exploring whether such interactive behaviour would have positive or detrimental effects on child engagement.

## Method

### *Participants*

One hundred and twenty mother-toddler dyads living in the Metropolitan Area of Porto participated in this study. Fifteen private child care centres were randomly selected from a list provided by regional welfare services. Eleven centres were non-profit and 4 were for-profit. Two toddler classrooms were studied in each centre: the classroom for 1-year-olds and the classroom for 2-year-olds. Two boys and two girls were randomly selected in each classroom. Children with identified special needs were not included in the sample. Families were contacted by the classroom lead teacher and asked to participate in the study. Whenever a family failed to reply or to give consent, a substitute child was randomly selected from the list. The families' participation rate was 71%. Child participants' ages ranged from 14 to 49 months ( $M = 26.19$ ,  $SD = 7.07$ ). Mothers' ages ranged between 18 and 43 years ( $M = 30.9$ ,  $SD = 5.3$ ) and mothers' education ranged between 0 and 18 years ( $M = 10.83$ ,  $SD = 4.47$ ).

### *Measures*

*Mother interaction behaviours.* The Teaching Styles Rating Scale (TSRS; McWilliam, Scarborough, Bagby, & Sweeney, 1998) was used to measure the quality of interaction behaviours of participating mothers. The TSRS is an observational instrument originally designed to capture the quality of two dimensions of teaching quality: specific interaction behaviours and affective characteristics of early childhood teachers. The interactive dimension consists of seven discrete items rated on a 7-point scale with 4 anchors. The affective dimension consists of 11 items rated on a 5-point

scale with 3 item-specific anchors. Before data analyses, ratings of these items were converted into a 7-point scale. For data reduction purposes, the 18 items of the TSRS were submitted to a principal component analysis (see Cruz, Aguiar, & Barros, 2004). Two internally consistent components were used in the present study: responsiveness [higher loading of items such as redirecting (negative), directiveness (negative), responsiveness toward child interests, tone, emotional responsiveness, acknowledgment, and consistency], and active teaching (higher loading of items such as level of activity, elaboration, content appropriateness, following, positive expression, praising, and informing). Cronbach's alpha for items included in the responsiveness component was 0,91 and Cronbach's alpha for items included in the active teaching component was 0,87. In this study, standardized factor scale scores for these two components were used for data analyses.

*Child outcomes.* The Engagement Quality Observation System (E-Qual III; McWilliam & de Kruif, 1998; Pinto, Aguiar, Barros, & Cruz, 2004) is a momentary time-sampling procedure that codes children's engagement behaviours at 15-second intervals during observation sessions of 15 minutes, in order to compute the percentage of time spent on each behaviour. E-Qual III includes 9 levels of engagement: persistence, symbolic, encoded, constructive, differentiated, focused attention, undifferentiated, casual attention, and non-engaged, arranged in a developmental hierarchy. In this study, only sophisticated engagement (a composite score computed as the sum of persistent, symbolic, encoded, and constructive behaviour) and non-engaged (i.e., the last level in the hierarchy, consisting of inappropriate behaviour such as aimless wandering, crying, etc.) were used.

*Quality of child care.* The Infant/Toddler Environment Rating Scale (ITERS; Harms, Cryer & Clifford, 1990) was used to assess the global quality of the individual classrooms. A Portuguese temporary translation was used (Harms, Cryer, & Clifford, 1990/1994). This scale gives an overall picture of the quality of group care provided for children up to 30 months of age. The ITERS consists of 35 items, organized under seven categories: Furnishings and display for children, Personal care routines, Listening and talking, Learning activities, Interaction, Program structure, and Adult needs. Each item is presented as a 7-point scale, with descriptors for 1 (*inadequate*), 3 (*minimal*), 5 (*good*), and 7 (*excellent*). When taken together, the 35 items of the ITERS provide a comprehensive picture of the quality of care provided in a classroom. In this study, Cronbach's alpha on the overall scale was 0,80.

### *Procedure*

*Mother interaction behaviours.* Each mother was asked to come to the child care centre, on 3 different days, to play with her child, using a toy box provided by the research team. According to the instructions, mothers were

to play with their child as they would at home, trying to explore all the toys available. After 10 minutes of play, the observer told mothers to ask the child to put the toys back into the box. The session would finish 5 minutes after this instruction. A team member videotaped the three 15-minute sessions. The 360 videotaped sessions were rated using *TSRS*. A second rater was used in a total of 90 observation sessions (25%). Percent agreement, within 1 scale point, ranged from 89% to 100% ( $M = 96\%$ ) and weighted kappa ranged from 0,15 to 0,62 ( $M = 0,42$ ). Some "scale points" were used infrequently, which attenuated weighted kappa.

*Child outcomes.* Using E-Qual III, trained observers recorded individual child behaviour at the end of a 15-second interval, during eight separate 15-minute sessions. Two sessions were conducted during mealtime, two during structured activities and the four remaining sessions during free play. Inter-observer agreement was checked during the course of data collection, with a second rater coding 242 sessions (25% of the total observation sessions). Mean percent agreement was 99% for sophisticated engagement and 96% for non-engagement. Mean kappa coefficient was 0,74 for sophisticated engagement and 0,77 for non-engagement.

*Quality of child care.* Data collectors remained an average of 4 weeks in each classroom, typically in the morning, in order to collect data on several measures not included in this particular study. *ITERS* was rated based on the observations made during that extended period of time and on the information provided by the lead teacher.

#### *Data Analyses*

Three sets of analyses were performed: (1) descriptive analyses of child engagement, mother interactive behaviours, and quality of care observed in toddler classrooms; (2) correlation analyses describing the simple associations among variables of interest; and (3) hierarchical linear model (HLM) analyses, using HLM 5.04 (Raudenbush, Bryk, & Congdon, 2001), that tested whether child care quality moderated the association between mothers' interaction behaviours and child engagement, while accounting for the effects of selected child and mother characteristics.

Data were collected at both the child level and the classroom level, with multiple children in each classroom, and multiple classrooms in each centre. Therefore, children were nested within classrooms and shared the ratings at the classroom level. Preliminary analyses revealed that estimating variance between centres did not contribute significantly. Therefore, the appropriate HLM model was a 2-level model with two sources of random variance: within classroom and between classroom variance (see Bryk & Raudenbush, 1987).

Two sets of child outcome variables were examined: sophisticated engagement and non-engagement. Model 1 tested the effects of mothers' responsiveness and the moderator role of child care quality, and Model 2 tested the effects of mothers' active teaching and the moderating effects of classroom quality. All variables were grand mean centred. With the exception of child gender (1 = female and 2 = male), all variables were continuous independent. In order to provide a context for interpreting the findings from HLM, effect sizes were computed as the product of the unstandardized coefficient and the standard deviation of the predictor divided by the standard deviation of the outcome.

## Results

Descriptive data on child engagement behaviours are presented in Table 1. A square root transformation was used on the measure of sophisticated engagement and non-engagement to reduce skewness and improve normality. For this sample, child care quality ranged from poor to minimal. ITERS scores ranged from 1.76 and 3.47, with 80% of classrooms scoring in the inadequate range, 20% of classrooms scoring in the minimal range, and no classrooms scoring in the high-quality range.

Table 1. Means, standard deviations and range for variables in HLM analyses

	<i>M</i>	<i>SD</i>	<i>Range</i>
<b>Child care quality (ITERS)</b>	2.60	0.45	1.76 – 3.47
<b>Child Chronological age (months)</b>	26.19	7.07	14 – 49
<b>Maternal Characteristics</b>			
Mothers' Education (years)	10.83	4.47	0 – 18
Mothers' Responsiveness (a)	4.93	0.68	2.76 – 6.23
Mothers' Active Teaching (a)	4.60	0.57	2.61 – 5.69
<b>% of Time Engaged</b>			
Sophisticated Engagement	8.07	8.3	0 – 38.85
Square Root Sophisticated Engagement	2.46	1.43	0.00 – 6.23
Non-engagement	14.01	6.60	2.92 – 35.42
Square Root Non-engagement	3.64	0.88	1.71 – 5.95

Note: (a) Standardized factor scores for Responsiveness and Active Teaching were used in the analyses.



For descriptive purposes, Table 2 presents correlation coefficients among mother, child, and classroom characteristics. Results of HLM analyses on the predictors of sophisticated engagement (see Table 3) indicated that child chronological age was significantly associated with higher percentages of time spent in sophisticated engagement. The effect size estimate indicated a large effect of child chronological age. Neither a main effect for child care quality nor statistically significant interactions between mothers' interaction behaviours and child care quality were found.

Table 2. Correlations between mother, child, and classroom characteristics

	1	2	3	4	5	6	7
1. Child care quality							
2. Child gender	.00						
3. Child chronological age (months)	.15	-.00					
4. Mothers' education (years)	-.04	.02	.03				
5. Mothers' responsiveness	.08	-.09	.27**	.31***			
6. Mothers' active Teaching	-.10	-.08	.22**	.28**	.00		
7. Square root sophisticated engagement	.25**	.01	.79***	.08	.20*	.07	
8. Square root non-engagement	-.36***	.11	-.47***	-.13	-.33***	.04	-.53***

Note: \*  $p < 0,05$ ; \*\*  $p < 0,01$ ; \*\*\*  $p < 0,001$ .

Results of HLM analyses on the variables predicting child non-engagement (see Table 4) indicated that child care quality and child chronological age were negatively related to non-engagement. In model 2, gender was significantly related to non-engagement indicating that boys spent more time non-engaged than girls. Also in model 2, mothers' education was a statistically significant predictor of non-engagement, indicating that children of mothers with more education spent less time non-engaged. Model 1 indicated a statistically significant interaction between maternal responsiveness and child care quality, suggesting maternal responsiveness had a negative effect on child non-engagement among children attending lower quality classrooms. Mothers' active teaching was positively associated with non-engagement, indicating that child non-engagement was higher for children whose mothers were rated higher on active teaching.

Table 3. Coefficients from HLM analyses of sophisticated engagement in child Care

	<i>Model 1</i>			<i>Model 2</i>		
	<i>B</i>	<i>se</i>	<i>ES</i> <sup>1</sup>	<i>B</i>	<i>se</i>	<i>ES</i> <sup>1</sup>
Intercept	2.46***	0.11		2.45***	0.10	
Child care quality	0.49	0.27	0.15	0.48	0.25	0.15
Child gender	0.02	0.14	0.01	0.03	0.13	0.02
Child chronological age (months)	0.15***	0.01	0.74	0.15***	0.01	0.74
Mothers' education (years)	0.03	0.02	0.09	0.03	0.02	0.09
Responsiveness	-0.09	0.06	-0.06			
Responsiveness × Child care quality	-0.06	0.19				
Active teaching				-0.09	0.07	-0.06
Active teaching × Child care quality				-0.20	0.21	

Note: \*  $p < 0,05$ ; \*\*  $p < 0,01$ ; \*\*\*  $p < 0,001$ .

<sup>1</sup>ES = Effect size.

Table 4. Coefficients from HLM analyses of non-engagement in child care

	<i>Model 1</i>			<i>Model 2</i>		
	<i>B</i>	<i>se</i>	<i>ES</i> <sup>1</sup>	<i>B</i>	<i>se</i>	<i>ES</i> <sup>1</sup>
Intercept	3.63***	0.08		3.64***	0.08	
Child care quality	-0.57***	0.14	-0.29	-0.54***	0.13	-0.28
Child gender	0.16	0.11	0.18	0.22*	0.11	0.25
Child chronological age (months)	-0.05***	0.01	-0.40	-0.06***	0.01	-0.48
Mothers' education (years)	-0.01	0.01	-0.05	-0.02*	0.01	-0.10
Responsiveness	-0.14*	0.06	-0.16			
Responsiveness × Child care quality	0.27* <sup>2</sup>	0.13				
Active teaching				0.15**	0.06	0.17
Active teaching × Child care quality				-0.07	0.12	

Note: \*  $p < 0,05$ ; \*\*  $p < 0,01$ ; \*\*\*  $p < 0,001$ .

<sup>1</sup> ES = Effect size.

<sup>2</sup> The effect size for maternal responsiveness among children from low quality care was -0.30 whereas the effect size among children from high quality classrooms was -0.02.

## Discussion

In this study, we aimed to investigate the effect of mothers' interactive behaviours on children's engagement in toddler child care. We also tested for moderation effects of child care quality on this relationship assuming that classroom characteristics would influence child outcomes.

Although part of the same molar construct, sophisticated engagement and non-engagement seem to be differently predicted. Sophisticated engagement seems to be quite strongly predicted by children's age, illustrating its fundamentally developmental nature. The age of participating children probably contributed to this finding. Important normative developmental changes occur between 12 and 48 months, namely in children's persistence and increased complexity in exploring materials and spaces, giving meaning to what surrounds them, and in the use of language. Thus, given a normative group of participants, low quality child care classrooms, and (contextually) distal mother's behaviours, children's chronological age seems to explain most of the variance observed in sophisticated engagement behaviours.

Non-engagement seems to be more broadly influenced. Although similarly predicted by children's chronological age, this negative effect is only of a moderate magnitude, suggesting a more complex nature of the behaviours it comprises. Non-engagement seems to be influenced by multiple ecological levels. At the individual level, it is predicted by children's characteristics such as age and gender, with boys exhibiting more non-engagement behaviours (in model 2). This specific effect is consistent with research findings on the effects of children's gender on behaviour. Note that boys have been described as presenting less effortful control and being less compliant (Kochanska, Murray, & Harlan, 2001) and that non-engagement specifically includes socially inappropriate behaviours.

At a proximal contextual level, non-engagement is negatively influenced by classroom quality, with children exhibiting more time non-engaged in lower quality settings, as expected, given previous research findings (Raspa *et al.*, 2001). Despite the homogeneous low-quality observed in participating classrooms, findings illustrate its negative effects on child behaviour. Children are more likely to engage in aimless wandering, crying, and other socially inappropriate behaviours in classrooms characterized by insufficient materials and lack of personalized care.

At a more distal level, family characteristics such as mothers' education and interactive behaviours also seem to influence non-engagement in child care. Research has consistently indicated an association among maternal education and child outcomes, which can be explained by different ideas, values, and interaction behaviours (Pelchat, Bisson, Bois, & Saucier, 2003).

For example, mothers with lower levels of education are more restrictive, have lower developmental expectations, and value children's performance, play, and language less (see Cruz, 2005). It is possible that (a) more educated mothers promote and reinforce developmentally and contextually appropriate child behaviour more frequently and more effectively, and/or that (b) less educated mothers have different expectations on what constitutes inappropriate behaviour, and therefore address child behaviours differently.

Findings from this study also provide empirical support for the effects of mothers' behaviours on non-engagement in child care, with mothers' responsiveness negatively influencing non-engagement and active teaching influencing non-engagement positively. Such findings suggest that, even in very young children, mothers' responsiveness is associated with less inappropriate behaviour and, conversely, with increased behaviour regulation, as found by Kochanska (1997). Interestingly, the fact that active teaching negatively influenced non-engagement, lead us to think that, despite the positive affect these mothers exhibit, their active teaching behaviours are non-contingent, and not responsive to children's needs and interests, as if they are centred on their own agenda. Conversely, children that experience this maternal behavioural profile seem to have more difficulties in behaving appropriately and responding to the expectations of the classroom environment. In this group of participants, mothers' active teaching seemed to have a detrimental effect on children's behaviour in child care. A possible explanation is that by actively promoting children's performance, mothers may actually become intrusive, conducting excessive stimulation, and limiting children's opportunities to learn how to engage on their own (Ispa *et al.*, 2004).

Finally, we highlight the moderating effects of classroom overall quality on the association between maternal responsiveness and child non-engagement. In this study, this association was stronger for children attending lower quality child care classrooms. Although some researchers have argued that exposure to poor quality care may impose ecological constraints on the potential positive effects of mothers' sensitive behaviour on children's outcomes (e.g., Aviezer, Sagi-Schwartz, & Koren-Karie, 2003), it can be argued that maternal responsiveness exerts a protective effect on children's engagement behaviours, when the latter attend poor quality early childhood settings. This is consistent with Sameroff and MacKenzie's (2003) assertion according to which the characteristics of the mother-child relationship are internalized and transported to other settings by the child.

Concluding, despite the limited variability in child care quality, this study provides support for the links between children's experiences in the family context and children's behaviour in toddler child care classrooms. While data on child engagement and child care quality were collected in

natural environments, mother interactive behaviours were observed in atypical circumstances; future studies may benefit from collection of such data in naturally occurring mother-child interaction opportunities, namely in the family home. By using multivariate analyses that account for nesting of children within child care classrooms, this study acknowledged and controlled for data non-independence, appropriately capturing the hierarchical structure characteristic of most social and human phenomena, and thus strengthening the validity of findings. Additional research is necessary on the individual (e.g., child temperament) and family predictors of child engagement in child care; specifically, further explanations on the effects of the characteristics of one setting on children's behaviour in another setting are warranted.

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